

Remarks

Claims 5-7, 9-21, 28 and 38-43 were pending.

Claims 5 and 7 are amended.

Claims 6, 9-21, 28, 38 and 40-43 are as previously presented.

Claim 39 is cancelled.

Claim 44 is new. The addition of new claim 44 is proper, even though after final, as it is fully dependent on and further limits claim 5, and claim 39 is cancelled so that there is the same number of claims.

The application now contains claims 5-7, 9-21, 28, 38 and 40-44.

Claims 5 and 7 are amended for clarity by specifying that the curing is "by plasma" (support is found in the Specification in paragraph 1 of page 1), moving the description of the processing steps, "applying the composition to a three-dimensional substrate and curing by plasma in a plasma discharge chamber" from after the definition of component d to line 1. The claims are also amended to specify in the first 3 lines that the composition comprises d and one of the subsequently described components a, b, c, a mixture of a and b or a mixture of a and c. Support is inherent in the claims.

Claim 5 is further amended to delete from line 76 the phrase "may also contain" and insert in its stead which "ring is either not further interrupted or is interrupted by one or more". Support is inherent in the claims.

Support for claim 44 is found in the specification on page 23, lines 6-7 following the structures at the top of the page.

No new matter is added.

Rejections

Claims 5-7 and dependent claims are rejected under 35 USC 112 second paragraph as being indefinite. Applicants respectfully submit that the instant amendments specifying that the curing is by plasma remedies the rejections described in paragraph 3, page 2 of the present Action.

The claims are also rejected as indefinite for reciting combinations of "and" and "or". Applicants respectfully disagree that this makes the claims indefinite and believe that the claim language used is acceptable according to current practice. Regarding the first 10 lines of lines of claims 5 and 7, Applicants point out that the composition being cured must contain component d and also contains one of a selection of 5 additional options, i.e., either component a, b, c, a mixture of a and b, or a mixture of a and c. Regarding the other occurrences of "and" and "or" applicants submit that the meanings are clear given current usage and that any attempt to remove this wording would require an extraordinary amount of repetition of claim language. For example " R_1 , R_2 and R_3 are each independently of the others a, b, c, d, or f" would become " R_1 is a, b, c, d, or f; R_2 is a, b, c, d, or f; R_3 is a, b, c, d, or f". Given the number of variables in the instant claims, Applicants respectfully suggest that this would become unnecessarily cumbersome which in itself would contribute to confusion.

Regarding claim 19, the presence of the "at least one free-radical-polymerisable compound (a)," is optional.

Applicants respectfully submit that in light of the amendments and discussion above, the rejections under 35 USC 112 second paragraph are overcome and kindly ask that they be withdrawn.

Claims 5, 6 and 19-21 are rejected under 35 USC 103(a) as being obvious over Borden et.al., US 3,943,103 in view of McGinniss, US 3,847,771 and Schadel et al., US 5,558,978.

Applicants respectfully traverse the rejections.

Borden discloses curing compositions using plasma but is silent about instant component d. McGinniss teaches the use of a specific thiol bisbenzothiazole used in combination with other initiators, benzophenones etc, in compositions undergoing plasma curing. The combination of these two references does not meet the limitations of the claims regarding component d as stated in the present Action. Nor does the instant invention use the synergist or initiators of McGinniss.

Schadel is cited to overcome this deficiency by suggesting that any free radical initiator can be used in the instant invention. Applicants respectfully aver that Schadel does not suggest the use of a free radical initiator during a similar curing by plasma in combination with the other components of the instant claims. The use of Schadel in the present rejections is apparently based on a misreading of the phrase in Schadel, col 10 line 16:

" The polymerization is generally initiated by a conventional free-radical initiator. Examples are thermal initiators, such as azo compounds, for example .alpha.,.alpha.'-azobisisobutyronitrile (AIBN), and peroxides, for example benzoyl peroxide, or redox initiator systems, such as a mixture of iron(III) acetylacetonate, benzoin and benzoyl peroxide, or photochemical free-radical formers, such as benzoin and benzil dimethyl ketal."

However, Schadeli does not disclose any combinations of these free-radical initiators with other initiators, such as photolabile acids, or any other synergistic blend as in the instant invention.

Schadeli discloses specific polymers useful as photoresists, photoactive compositions containing a) the existing, specified polymers and b) compounds which form an acid when exposed to actinic radiation and methods for irradiating the compositions. The citation quoted by the Examiner from col 10 of Schadeli refers only to the process for making the novel specified polymers (a) of the invention which are then treated with latent acids.

Thus Schadeli prepares novel polymers with conventional free-radical initiators in a thermal reaction and then subjects the polymers to radiation in the presence of latent acids.

The instant invention relates to plasma curing using synergistic blends. While art can be cited which discloses various components of the instant invention, Applicants respectfully note that when considering the art, an "as a whole assessment" of the art requires a showing that it would have been obvious for one to have selected each of the elements of the claimed invention when confronted by the problems addressed by the inventor based on what was clearly known or disclosed at the time. Thus there must be some suggestion in the art to select and combine each of the elements of the invention. Applicants submit that the art fails to suggest combining instant component d with components a, b, c, a and b, or a and c in plasma curing nor is there reason to expect the observed synergy.

Applicants respectfully submit that the rejections of claims 5, 6 and 19-21 under 35 USC 103(a) over Borden et al., US 3,943,103 in view of McGinniss, US 3,847,771 and Schadeli et al., US 5,558,978 are overcome and kindly ask that the rejections be withdrawn.

Claims 7, 28 and 43-28 are rejected under 35 USC 103(a) over Borden US 3,943,103 above in view of McGinness, US 3,847,771 and Toba JP 10158039 and Schadeli, US 5,558,978.

Similarly, Claims 9-18 are rejected under 35 USC 103(a) over Borden US 3,943,103 above in view of McGinness, US 3,847,771 and Klinkenberg, US 2002/0076504 and Schadeli, US 5,558,978.

In each rejection, Schadeli is relied upon to suggest a instant component d in combination with, e.g., a photo latent, acid in the plasma curing process. As explained above, Schadeli does not suggest any synergistic combinations, especially in a plasma reaction. Schadeli merely reports on the common place use of a standard photoinitiator in a standard process of making a polymer.

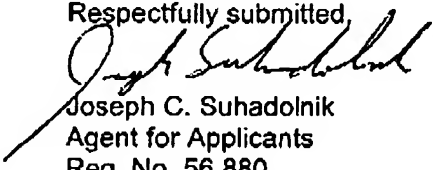
Applicants also note that the Action states on page 8 that the previous rejections, which are similar to the instant rejections without Schadeli, are overcome. As Schadeli only generically mentions the standard use of a benzoin and benzil dimethyl ketal initiator in a thermal reaction, Applicants respectfully submit that Schadeli can not be used to establish the use of the instant compounds of component d in combination with other initiators in plasma curing.

Applicants therefore respectfully aver that the combined cited art does not meet the instant limitations nor suggest the instant synergistic combinations. Thus Applicants respectfully submit that the rejections of claims 7, 28 and 38-43 under 35 USC 103(a) over Borden, McGinness, Toba and Schadeli; and claims 9-18 over Borden, McGinness, Klinkenberg, and Schadeli, are overcome and kindly ask that the rejections be withdrawn.

Applicants therefore respectfully submit that all rejections are addressed and are overcome and kindly ask that they be withdrawn and claims 5-7, 9-21, 28, 38 and 40-44 be found allowable. In the event that minor amendments will further prosecution, Applicants request that the examiner contact the undersigned representative.

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